



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/568,435

02/14/2006

Michel Suquet

05631069

9990

466

7590

04/05/2007

YOUNG & THOMPSON
745 SOUTH 23RD STREET
2ND FLOOR
ARLINGTON, VA 22202

EXAMINER

VAZQUEZ, ARLEEN M

ART UNIT

PAPER NUMBER

2829

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
--	-----------	---------------

3 MONTHS

04/05/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No. 10/568,435	Applicant(s) SUQUET, MICHEL	
	Examiner Arleen M. Vazquez	Art Unit 2829	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 December 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 3,9 and 10 is/are allowed.
- 6) ☒ Claim(s) 1,2,4-7 and 11-13 is/are rejected.
- 7) ☒ Claim(s) 8 and 14 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 February 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1 and 2 are rejected under 35 U.S.C. 102(b) as being anticipated by ***Selcuk (US 5,825,175)***.

As to claim 1, ***Selcuk*** discloses in Figures 1 and 2 a device (10) for measuring the intensity of a strong current (***Selcuk*** inherently will be able to measure a “strong current” because it discloses similar components and functionality as the claimed invention) passing through a wire (electrical conductor extending through axis 15, Col. 2 lines 42-48; Col. 3 lines 13-19), comprising a magnetic sensor (37,38) in the form of a loop (as shown in Figure 2) surrounding the wire (Col. 3 lines 13-19), and a turn (20,21) of conductive material (Col. 2 lines 56-61) surrounding the wire, conducting a high-frequency counter-current (Col. 3 lines 44-48), the intensity of which cancels the magnetic field, wherein the turn (20,21) of conductive material is in short circuit (being in a close loop makes the turn to be in short circuit, Col. 3 lines 63-66) and surrounds the magnetic sensor (37,38).

As to claim 2, ***Selcuk*** discloses in Figures 1 and 2 the turn (20,21) of conductive material in short circuit (Col. 3 lines 63-66) is a closed turn.

Art Unit: 2829

3. Claim 13 is rejected under 35 U.S.C. 102(b) as being anticipated by **Hagmann et al. (US 6,566,854)**.

As to claim 13, **Hagmann et al.** discloses in Figure 1 a device (20) for measuring the intensity of a strong current passing through a wire (current passing through conductor 28), comprising a magnetic sensor (22,24) comprising a first wire (22) forming a closed loop whose entire circumference is surrounded by coils of a coiled second wire (24), the magnetic sensor (22,24) extending completely around a wire (conductor 28) whose current is being measured (Col. 4 lns 4-15), a turn of conductive material (turn 26 is made of aluminum) that is a loop in short circuit (Col. 4 ln 63- Col. 5 ln 9) and extending completely around the wire whose current is being measured, said turn (26) having an internal annular channel (turn 26 have a channel where wires 22 and 24 are located inside the turn) in which said magnetic sensor (22,24) is housed, said turn conducting a high-frequency counter-current (turn conducts the current measure by the magnetic material), the intensity of which cancels the magnetic field created by the current in the wire whose current is being measured (the opposing directions between the wire and the carrying current with the turn and the magnetic sensor allow to cancel the generated magnetic field).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Art Unit: 2829

5. Claims 4 and 9-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Selcuk (US 5,825,175)** in view of **R. W. Gilbert (US 2,958,036)**.

As to claims 4 and 9, **Selcuk** discloses everything above except for that the turn is made of soft iron. However, **R. W. Gilbert** discloses in Figure 4 the turn (26) is made of soft iron (Coil. 4 lines 26-29).

It would have been obvious for one of ordinary skill in the art at the time the invention was made to modify **Selcuk's** teaching by having a turn made of soft iron as taught by **R. W. Gilbert** in order to allow a good excitation of the flux of the strong current passing through the turn since iron is a good electrical conductor.

As to claim 10, **Selcuk** discloses in Figures 1 and 2 the turn (20,21) includes, internally a channel (35,36; Col. 2 lines 61-65) concentric with the torus of the turn, containing the magnetic sensor (37,38).

As to claim 11, **Selcuk** discloses in Figures 1 and 2 the turn (20,21) includes, internally a channel (35,36; Col. 2 lines 61-65) concentric with the torus of the turn, containing the magnetic sensor (37,38).

6. Claims 5 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Selcuk (US 5,825,175)** in view of **R. W. Gilbert (US 2,958,036)** in further view of **R. A. Warner (US 2,175,046)**.

As to claim 5, the combined teachings of **Selcuk** and **R. W. Gilbert** discloses everything above but fails to disclose that the turn of soft iron is surrounded externally by a copper jacket. However, **R. A. Warner** discloses in Figure 2 an external copper jacket (14).

It would have been obvious for one ordinary skill in the art at the time the invention was made to modify the combined teachings of **Selcuk** and **R. W. Gilbert** by having an external copper jacket as taught by **R. A. Warner** in order to protect the interior of the turn because of the characteristic of copper used as damper material.

As to claim 12, **Selcuk** discloses in Figures 1 and 2 the turn (20,21) includes, internally a channel (35,36; Col. 2 lines 61-65) concentric with the torus of the turn, containing the magnetic sensor (37,38).

7. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over **Selcuk (US 5,825,175)** in view of **Hagmann et al. (US 6,566,854)**.

As to claim 6, **Selcuk** discloses everything above except for the turn includes internally, a channel concentric with the torus of the turn, containing the magnetic sensor. However, **Hagmann et al.** discloses in Figure 1 the turn includes internally, a channel concentric with the torus of the turn, containing the magnetic sensor.

It would have been obvious for one ordinary skill in the art at the time the invention was made to modify **Selcuk** teachings by having a channel concentric with the torus of the turn as taught as **Hagmann et al.** in order to allow constant flow of the strong current through the turn without any interruption.

8. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over **Selcuk (US 5,825,175)** in view of **Kawaguchi et al. (US 5,103,164)**.

As to claim 7, **Selcuk** discloses everything except for the magnetic sensor being a wire of nickel-iron alloy forming a closed loop and surrounded around its entire circumference by a coil that is formed by helical turns. However, **Kawaguchi et al.**

Art Unit: 2829

discloses in Figure 4 that the magnetic sensor (formed by the wire and coils 3a, 3b) is a wire of nickel-iron alloy forming a closed loop (as shown in the figure) and surrounded around its entire circumference by a coil (3a, 3b) that is formed by helical turns.

It would have been obvious for one ordinary skill in the art at the time the invention was made to modify **Selcuk's** teaching by having a magnetic sensor formed by wire and coil as taught by **Kawaguchi et al.** in order to assure the good electrical conductivity and the good flux of current to allow the sensor to detect the correct current.

Response to Arguments

9. Applicant's arguments filed 12/18/2006 have been fully considered but they are not persuasive.

As to applicant's argument of claims 1 and 2, the reference does not disclose a magnetic sensor in the form of a loop surrounding the wire examiners disagree.

Reference of **Selcuk (US 5,825,175)** does teach a magnetic sensor which components are 37 and 38 in the form of a loop surrounding the wire or conductor 15. As shown in Figure 1 magnetic sensor 37 and 38 are inside jaws 12 and 13 and when they are in closed position they form a loop in order to surround the conductor 15 to measure the current passing through the conductor. Furthermore in Column 4 lines 10-15m is disclosed the invention can have continuous or non-continuous loops. Therefore the magnetic sensor 37 and 38 of **Selcuk** forms a loop surrounding the wire.

Allowable Subject Matter

10. Claims 8 and 14 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

As to claims 8 and 14, the prior art of record fail to teach or suggest wherein a resistance R and an inductance L of the turn of conductive material define an L/R filtering constant of the turn of conductive material with which the turn of conductive material filters components of the current passing through the wire.

11. Claims 3,9-10 are allowed.

The following is an examiner's statement of reasons for allowance:

Claims 3 recites a device for measuring the intensity of a strong current passing through a wire comprising wherein a resistance R and an inductance L of the turn of conductive material define an L/R filtering constant of the turn of conductive material with which the turn of conductive material filters components of the current passing through the wire, in combination with other elements of the claim.

These features in combination with other elements of the claims are neither disclosed nor suggested by the prior art of record.

Since claims 9 and 10 depend from claim 3, they are also allowed.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Hagmann et al. (US 4,897,600) discloses a "High frequency ammeter".

Ray (US 6,614,218) discloses a "Current measuring device".

Barach et al. (US 4,324,255) discloses a "Method and apparatus for measuring magnetic fields and electrical currents in biological and other systems".

Conclusion

13. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Arleen M. Vazquez whose telephone number is 571-272-2619. The examiner can normally be reached on Monday to Friday, 8am to 5pm.

Art Unit: 2829

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ha Nguyen can be reached on 571-272-1678. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

AMV



HA TRAN NGUYEN
SUPERVISORY PATENT EXAMINER

4/2/7